APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/598,210	06/21/2000	Johan Nilsson	040071-173	8106

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EXAMINER
MOORE, WILLIAM P

ART UNIT	PAPER NUMBER
2133	

DATE MAILED: 04/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 07-01)

	Application No.	Applicant(s)	
Offic Action Summary	09/598,210	NILSSON, JOHAN	
	Examiner	Art Unit	
	William P Moore	2133	

-- *The MAILING DATE of this communication appears on th cover sheet with th correspondenc address* --

Peri d for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _02 February 2003_ .

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disp sition of Claims

4)☒ Claim(s) _1 to 18_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-3,5-7,10-12 and 14-16_ is/are rejected.

7)☐ Claim(s) _4,8,9,13,17 and 18_ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _21 June 2000_ is/are: a)☐ accepted or b)☒ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

    If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Pri rity under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____ .

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

    a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _2_ .

4)☐ Interview Summary (PTO-413) Paper No(s). _____ .
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other: .

Detailed Office Action

Drawings

1.   The following is a quotation of 37 CFR 1.84:

> (l) *Character of lines, numbers, and letters.* All drawings must be made by a process which
> will give them satisfactory reproduction characteristics. Every line, number, and letter must be
> durable, clean, black (except for color drawings), sufficiently dense and dark, and uniformly
> thick and well-defined. The weight of all lines and letters must be heavy enough to permit
> adequate reproduction. This requirement applies to all lines however fine, to shading, and to
> lines representing cut surfaces in sectional views. Lines and strokes of different thicknesses
> may be used in the same drawing where different thicknesses have a different meaning.

2.   The Figure 1 and 2 are objected to under 37 CFR 1.84 because the numbers and letters are handwritten and difficult to read.

Claim Rejections - 35 USC 103

Statement of Statutory Basis

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described
> as set forth in section 102 of this title, if the differences between the subject matter sought to
> be patented and the prior art are such that the subject matter as a whole would have been
> obvious at the time the invention was made to a person having ordinary skill in the art to which
> said subject matter pertains. Patentability shall not be negatived by the manner in which the
> invention was made.

4.   Claim 1 is rejected under 35 USC 103(a) as being unpatentable over Wan et al. (WO 99/49610).

Wan et al. has disclosed:

    a. using an error correction decoding technique to generate a block of decoded bits from the received signal (output of 135);

    b. using an error detection technique to determine whether at least one of the decoded bits from the block of decoded bits has an erroneous value (combination of 136, 138, 140);

c. if none of the decoded bits from the block of decoded bits has an erroneous value,

then calculating the bit error rate estimate from the received signal (pg 2, line 22-

24);

Wan et al. does not explicitly disclose that if at least one of the decoded bits from the

block of decoded bits has an erroneous value, then setting the bit error rate estimate equal to a

value that is based on a previously calculated bit error rate.

However, Wan et al. does disclose that the BER is only calculated if a PASS result from

block decoding, pg 2, lines 22-24. To one of ordinary skill in the art this suggests that the BER

is not updated when there is a FAIL condition, thus the previous BER would be used.

At the time of invention it would have been obvious for a person of ordinary skill in the

art to modify wan et al. such that the last calculated value is use as the current BER. The

motivation for making this change is because the current BER is not updated during a FAIL

condition, thus, the only available BER for use is the previous BER.

5.   Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wan et al., as

applied to claim 1 above.

Wan et al. has disclosed:

a. using the error detection technique to generate error detection information from

the block of decoded bits (141);

b. processing the block of decoded bits and the error detection information to

generate a synthesized block of coded bits (output of 136) ... ;

c. using a non-error correction decoding technique to generate a block of raw

decoded bits from the received signal (139);

d. comparing each bit of the synthesized block of coded bits with a corresponding

bit of the block of raw decoded bits (140);

6.   Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wan et al., as

applied to claim 1 above.

The obvious modification of Wan et al has disclosed setting the bit error rate estimate

equal to the value that is based on the previously calculated bit error rate. See, rejection of claim

1 under 35 USC 103(a), para. "At the time...".

7. Claim 4 is rejected under 35 USC 103(a) as being unpatentable over the Wan et al., as applied to claim 1 above.

Wan et al. has not explicitly disclosed that the error detection technique includes calculating a cyclic redundancy check.

Examiner takes official notice that CRC codes are an old and well known checksum method, that allows a receiver to determine whether the received data has been corrupted, where the received data includes an additional CRC field serving as a checksum for the data, and where the receiver performs syndrome calculations on the received data to determine if there was an error in the received data.

At the time of invention it would have been obvious for a person of ordinary skill in the art to modify Wan et al. such that it includes a CRC checking circuit connected to the output of the signal decoder.

The motivation for making this modification would be to provide a robust method of detecting errors in the received data.

8. Claim 5 is rejected under 35 USC 103(a) as being unpatentable over Wan et al., as applied to claim 4 above.

The obvious modification of Wan et al. has disclosed the error detection technique includes calculating a cyclic redundancy check. See rejection of claim 4 under 35 USC 103(a), para. "Examiner takes... notice that ....(for a CRC code the) receiver performs syndrome calculations on the received data...".

9. Claim 6 is rejected under 35 USC 103(a) as being unpatentable over Wan et al., as applied to claim 1 above.

Wan et al. does not explicitly disclose that the error correction decoding technique includes using Viterbi processing.

Wan et al. does disclose that the data is corrected by means of error correction (132).

The examiner takes official notice that viterbi is an old and well known error correction mean with excellent error correction performance, where the transmitter encodes the signal using a convolutional code and the received decodes the convolutional code using a viterbi algorithm.

At the time of invention if would have been obvious for a person of ordinary skill in the art to modify Wan et al. such that the error correction means (132) is a viterbi decoder.

The motivation for doing so would be to improve the performance of the receiver by empolying a robust error correction mean such as viterbi decoding.

10.   Claim 7 is rejected under 35 USC 103(a) as being unpatentable over Wan et al., as applied to claim 1 above.

Wan et al. does not explicitly disclose deinterleaving the received signal to generate a deinterleaved received signal.

The examiner takes official notice that interleaving is an old and well known method of error correction that is used to provide protection against burst error, where the receiver encodes the data using an interleaver followed by other error correction encoding such as convolutional encoding; and the receiver de-interleaves the data after decoding the data using error correction decoding, such as viterbi decoding.

At the time of invention it would have been obvious for a person of ordinary skill in the art to modify Wan et al. such that error correction means (132) is followed by a deinterleaver.

The motivation for making this modification would be improve the performance of the receiver by providing protection again burst errors.

11.   Claim 10 is rejected under 35 USC 103(a) as being unpatentable over Wan et al., as applied to claim 1 above. Wan et al has substantial disclosed all of the claim limitations.

Claim 11 is rejected under 35 USC 103(a) as being unpatentable over Wan et al., as applied to claim 2 above. Wan et al has substantial disclosed all of the claim limitations.

Claim 12 is rejected under 35 USC 103(a) as being unpatentable over Wan et al., as applied to claim 3 above. Wan et al has substantial disclosed all of the claim limitations.

Claim 14 is rejected under 35 USC 103(a) as being unpatentable over Wan et al., as applied to claim 5 above. Wan et al has substantial disclosed all of the claim limitations.

Claim 15 is rejected under 35 USC 103(a) as being unpatentable over Wan et al., as applied to claim 6 above. Wan et al has substantial disclosed all of the claim limitations.

Claim 16 is rejected under 35 USC 103(a) as being unpatentable over Wan et al., as applied to claim 7 above. Wan et al has substantial disclosed all of the claim limitations.

In reference to claims 10 to 12, and 14 to16 Wan et al. has substantial disclosed all of the claim limitations, except for the feature that each of the claim limitation is implemented using logic.

The examiner takes official notice that the engineering trend of designing digital ASIC (Application-Specific-Integrated-Circuits) is old and well known and that this design method has several advantages over prior design methods, such being faster, smaller, and cheaper if mass-produced. It is old and well known that each of the functions in a Digital ASIC are implemented using logic.

At the time of invention it would have been obvious for a person of ordinary skill in the art modify Wan et al. such the invention of Wan et al is implemented as a digital ASIC, thus all of claim limitation would be implemented using logic.

The motivation for making this modification would be to increase the performance of the receiver by making it faster, and smaller; and at the same time to make it cheaper.

12.   Claims 1, 2, 5, 6, 10, 11, 14, and 15 are rejected under 35 USC 103(a) as being unpatentable over Abe (EP 0 600 095 A1).

Abe has disclosed all of the claim limitations of claims 1, 2, 5, 6, 10, 11, 14, and 15 except for the feature of a previously calculated BER (See previous office action dated, 12/27/2002).

One of ordinary skill in the art would have recognized that the preset BER should be estimated with a value that maximizes the accuracy of BER at the receiver. (See, col. 14, lines 5-8)

At the time of invention it would have been obvious for a person of ordinary skill in the art to modify Abe such that preset bit error rate of Abe has been previously estimated, i.e. calculated.

The motivation for doing so would be to set the pre-set bit error rate with the optimum value to as to maximize the accuracy of the BER at the receiver, as would have been recognized by a person of ordinary skill in the art (See, col. 14, lines 5-8).

Allowable Subject Matter

13.   Claim 4, 8, 9, 13, 17, and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

Applicant's arguments with regards to claim 1, 2, 3, 4, 5, 6, 7, 10, 11, 12, 14, 15, and 16 have been considered but are moot in view of the new ground(s) of rejection based on Wan et al. (WO 99/49610), and Abe(EP 0 600 095 A1).

In response to applicant's argument that Abe does not include the feature of a previously calculated bit error rate with regards to claims 1, 2, 5, 6, 10, 11, 14, and 15. Examiner withdraws the previous rejection of claims 1, 2, 5, 6, 10, 11, 14, and 15 under 35 USC 102 based on this argument, and reasserts this rejections under 35 USC 103(a) (see above).

In response to applicant's argument that prima facie case of obviousness has not been establish with regards to claims 3, 4, 12, and 13 (page 4), upon reconsideration, Examiner agrees that col. 3, lines 40-47 does not provide proper motivation to modify Abe in the way claimed. Examiner withdraws the prior rejection of claims 3, 4, 12, and 13, under 35 USC 103(a) based on Abe.
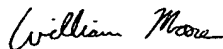
Conclusion

14.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to William Patrick Moore whose telephone number is (703)305-9727. The examiner can normally be reached on 8:30 - 5 PM If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert Decady can be reached on (703)305-9595. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-7239 for regular communications and (703) 746-7238 for After Final communications. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 746-7240.

William Patrick Moore

Examiner

AU 2133

April 17, 2003

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